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Genetic modification of adipose derived stem cells with recombinant plasmid DNA pBud-VEGF-FGF2 results in increased of IL-8 and MCP-1 secretion

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Abstract

Bacterial plasmid DNA is often used in gene therapy application as a vector for delivering recombinant genes into eukaryotic cells. In this work we study effect of plasmid DNA encoding pro-angiogenic growth factors VEGF and FGF2 on cytokine production of human adipose derived stem cells (ADSC). Adipose tissue contain progenitor and stem cells with angiogenic potential which are considered promising cell source for treating ischemic conditions. Genetic modification of human ADSC with recombinant plasmids encoding therapeutic growth factors might change therapeutic potential of these cells. We report that genetic modification of ADSC with recombinant plasmid pBud-VEGF-FGF2 results in expected increased of VEGF secretion and also results in increase of IL-8 and MCP-1 secretion into culture medium.

Keywords

Bacterial plasmid DNA, Basic fibroblast growth factor, Chemokines, Cytokines, Genetic modification, Stem cells, Stromal vascular fraction, Vascular endothelial growth factor